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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,215	11/25/2003	Tomoo Akizuki	03500.017736	4982

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EXAMINER	
LEE, PETER	

ART UNIT	PAPER NUMBER
2852	

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/720,215	AKIZUKI ET AL.	
	Examiner	Art Unit	
	Peter Lee	2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10-14* is/are rejected.

7)☐ Claim(s) *2 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/5/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 7 and 14 are objected to because of the following informalities:

Claim 7 states a "second judging means", however there is no mention of a "first judging means" in any of the preceding claims from which claim 7 relies upon. It is suggested to make claim 7 dependent upon claim 6 which does mention as "first judging means" or to change on p.109 lines 1 and 6 "second judging means" to --a judging means--.

Claim 14 states a "second judging means", however there is no mention of a "first judging means" in any of the preceding claims from which claim 14 relies upon. It is suggested to either make claim 14 dependent upon claim 13 which does mention as "first judging means" or to change on p.112 lines 9 and 14 "second judging means" to --a judging means--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Kato (US 5899599).

Kato teaches a fixing device (fig. 1A) comprising: a heating roller (part 1) (ie. first

rotatable member having an endless configuration); a pressure roller (part 4) (ie. second rotatable member in pressure contact with said first rotatable member), the two rollers are driven so as to pass a recording member in between them (col. 6 line 62 – col. 7 line 2) (ie. causes a recording material bearing an image to be nipped and conveyed at a pressure contact portion); a resistance heating element (part 13) (ie. temperature raising means) for heating the heating roller; a thermistor (part TM) (ie. temperature detecting means for detecting temperature) located at a position close to the pressure contact as seen in fig. 1A; a control unit (part 3) for controlling the electric power so as to supply to the heating element the electric power required to maintain a predetermined temperature(ie. first control means for feedback controlling electric power to be supplied to said temperature raising means), the control unit maintains the predetermined temperature according to a rate of temperature rise detected by the thermistor (col. 9 lines 5-60) (ie. setting means for variably setting a set value to be supplied based on a temperature rise speed detected by said temperature detecting means); the control unit is taught to have a constant temperature regulation mode (col. 9 lines 33-39) (ie. second control means for supplying electric power in close timing in which the temperature detected reaches a target temperature) in which the estimated required power is supplied to the resistance heating element, and also the control unit is used for timing the insertion of a recoding member between the heating and pressure rollers (ie. recording material rushes in said pressure contact portion) and using the temperature detected by the thermistor to compare to a predetermined temperature and maintain that temperature either by reducing or increasing the power supplied (col. 9 lines 48-57).

The fixing device taught by Kato is further taught to fuse an unfixed toner image on a

recording device by passing a recoding member bearing an unfixed toner image between the heating roller and the pressure roller (col. 10 lines 41-45).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato in view of Nakamura et al. (US 20020012543).

Kato teaches all of the limitations as laid out above supra.

Kato does not specifically teach the fixing apparatus using a nonvolatile memory for storing detected and set values.

Nakamura et al. teaches the use of EEPROM memory (fig. 2 part 22; paragraph [0025]) (ie. nonvolatile memory) to store information and commands from the cpu regarding temperature and power control of the fixing apparatus.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention as taught by Kato to include nonvolatile memory in the form of EEPROM memory as taught by Nakamura et al. One of ordinary skill in the art would have been motivated to use the nonvolatile memory in order to store information (ie. value corresponding to a temperature rise speed and set values set by said setting means) that would not be risked to be lost even when a power is lost ([0025]).

5. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato in view of Goto et al. (US 6519426).

Kato teaches all of the limitations as laid out supra.

Kato does not teach first judging means for judging a heat storage condition of a fixing apparatus, nor does Kato teach a second judging means for judging the kind of recording material for setting a fixing temperature based on such information.

Goto further teaches a heater control temperature table that employs an algorithm (fig. 5; col. 11 lines 1-15) (ie. first judging means) that controls the heater control of a heating roller of a fixing apparatus based on the number of continuous pages printed (ie. judging a heat storage condition of said fixing apparatus). Goto also teaches the image forming apparatus having 3 separate modes (fig. 5 mode a-c) (ie. second judging means for judging the kind of the recording material) for setting up temperature and power control when handling different types of papers (col. 11 lines 47-62).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the fixing device as taught by Kato by adding a heater control temperature table and selectable temperature/power modes related to a paper type as taught by Goto. One of ordinary skill in the art would have been motivated to have include a heater control temperature table as taught by Goto in order to more closely regulate a fixing temperature for sufficient fixing properties (col. 11 lines 10-15). One of ordinary skill in the art would have been motivated to include the selectable temperature/power modes depending on the paper types as

taught by Goto because it allows a user to adapt the fixing properties according to the different paper types that can be used to optimize a print job (col. 11 lines 56-62).

6. Claims 8, 10, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato in view of Omoto et al. (US 2003/0039480).

Kato teaches a fixing device (fig. 1A) comprising: a heating roller (part 1) (ie. first rotatable member having an endless configuration); a pressure roller (part 4) (ie. second rotatable member in pressure contact with said first rotatable member), the two rollers are driven so as to pass a recording member in between them (col. 6 line 62 – col. 7 line 2) (ie. causes a recording material bearing an image to be nipped and conveyed at a pressure contact portion); a resistance heating element (part 13) (ie. temperature raising means) for heating the heating roller; a thermistor (part TM) (ie. temperature detecting means for detecting temperature) located at a position close to the pressure contact as seen in fig. 1A; a control unit (part 3) for controlling the electric power so as to supply to the heating element the electric power required to maintain a predetermined temperature(ie. first control means for feedback controlling electric power to be supplied to said temperature raising means), the control unit maintains the predetermined temperature according to a rate of temperature rise detected by the thermistor (col. 9 lines 5-60) (ie. setting means for variably setting a set value to be supplied based on a temperature rise speed detected by said temperature detecting means); the control unit is taught to have a constant temperature regulation mode (col. 9 lines 33-39) (ie. second control means for supplying electric power in close timing in which the temperature detected reaches a target temperature) in which the estimated required power is supplied to the resistance heating element, and also the control

unit is used for timing the insertion of a recoding member between the heating and pressure rollers (ie. recording material rushes in said pressure contact portion) and using the temperature detected by the thermistor to compare to a predetermined temperature and maintain that temperature either by reducing or increasing the power supplied (col. 9 lines 48-57).

The fixing device taught by Kato is further taught to fuse an unfixed toner image on a recording device by passing a recoding member bearing an unfixed toner image between the heating roller and the pressure roller (col. 10 lines 41-45).

Kato does not teach having a second temperature detecting means provided near a pressure contact portion.

Omoto et al. (US 2003/0039480) teaches a fixing apparatus for an image forming apparatus similar to the one taught by Kato. Omoto teaches utilizing a first heat roller temperature sensor (fig. 2 part 47) (ie. first temperature detecting means) and further teaches a second pressure roller temperature sensor (fig. 2 part 49) (ie. second temperature detecting means provided near said pressure contact portion).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the fixing apparatus taught by Kato by utilizing a second temperature detecting means near a pressure roller as taught by Omoto. One of ordinary skill in the art would have been motivated to do so in order to obtain more precise temperature readings of the fixing apparatus, which in turn allows the apparatus to have greater control over temperature control, which in turn allows for reducing a heat up time and reduces unnecessary power consumption (paragraph [0019] – [0022]).

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato in view of Omoto et al. as applied to claims 8, 10, 12 above, and further in view of Nakamura et al. (US 20020012543).

Kato in view of Omoto et al. teaches all of the limitations as laid out above supra.

Kato in view of Omoto et al does not specifically teach the fixing apparatus using a nonvolatile memory for storing detected and set values.

Nakamura et al. teaches the use of EEPROM memory (fig. 2 part 22; paragraph [0025]) (ie. nonvolatile memory) to store information and commands from the CPU regarding temperature and power control of the fixing apparatus.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention as taught by Kato in view of Omoto et al. to include nonvolatile memory in the form of EEPROM memory as taught by Nakamura et al. One of ordinary skill in the art would have been motivated to use the nonvolatile memory in order to store information (ie. value corresponding to a temperature rise speed and set values set by said setting means) that would not be risked to be lost even when a power is lost ([0025]).

8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato in view of Omoto et al. as applied to claim 8, 10, 12 above, and further in view of Gato et al.

Kato in view of Omoto et al. teaches all of the limitations as laid out above for claims supra.

Kato in view of Omoto et al. does not teach a first judging means for judging a heat

storage condition of a fixing apparatus, nor does Kato in view of Omoto et al. teach a second judging means for judging the kind of recording material for setting a fixing temperature based on such information.

Goto teaches a heater control temperature table that employs an algorithm (fig. 5; col. 11 lines 1-15) (ie. first judging means) that controls the heater control of a heating roller of a fixing apparatus based on the number of continuous pages printed (ie. judging a heat storage condition of said fixing apparatus). Goto also teaches the image forming apparatus having 3 separate modes (fig. 5 mode a-c) (ie. second judging means for judging the kind of the recording material) for setting up temperature and power control when handling different types of papers (col. 11 lines 47-62).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the fixing device as taught by Kato in view of Omoto et al. by adding a heater control temperature table and selectable temperature/power modes related to a paper type as taught by Goto. One of ordinary skill in the art would have been motivated to have include a heater control temperature table as taught by Goto in order to more closely regulate a fixing temperature for sufficient fixing properties (col. 11 lines 10-15). One of ordinary skill in the art would have been motivated to include the selectable temperature/power modes depending on the paper types as taught by Goto because it allows a user to adapt the fixing properties according to the different paper types that can be used to optimize a print job (col. 11 lines 56-62).

9. Claims 2 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Lee whose telephone number is 571-272-2846. The examiner can normally be reached on mon-fri 9:00 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Arthur Grimley can be reached on 571-272-2136. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PL 6/8/2005

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